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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,157	12/04/2003	Harold Robert Schnetzka	20712-0065	6783

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EXAMINER

VIDAYATHIL, TRESA V

ART UNIT	PAPER NUMBER
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3746

MAIL DATE	DELIVERY MODE
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08/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/728,157

Applicant(s)

SCHNETZKA ET AL.

Examiner

Tresa V. Vidayathil

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 21 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1 and 8 are objected to because of the following informalities: the terms "each" and "each compressor" are used interchangeably. All instances of the word "each" should be changed to "each compressor" when referring to the "at least two compressors" so that the claim language is consistent. For example, in amended claim 1, l. 20 the word "each" should be changed to "each compressor." Appropriate correction is required.
2. Claims 1, 5, and 8 are objected to because of the following informalities: the terms "pressure pulses" (first mentioned in amended claim 1, l. 12) and "outlet pressure pulse" (first mentioned in amended claim 1, l. 24) appear to describe the same pressure pulses. The claims should be changed to be more consistent. The Examiner recommends changing all instances of "pressure pulses" to "outlet pressure pulses" because it is more descriptive and would further differentiate those pressure pulses from the "composite pressure pulse," which is clearly different. Appropriate correction is required.
3. Claim 8 is objected to because of the following informalities: the word "pulse" should be removed from l. 13 because it is redundant. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Amended claims 1, 5, and 8 claim that the means of control used to control the phase of operation so that the outlet pressure pulse operatively produced by each of the remaining of the at least two compressors is substantially evenly spaced between successive outlet pulses operatively produced by the reference compressor. It is not disclosed in the specification how the phase of operation is controlled or shifted to produce the claimed result. As noted on the Interview Summary mailed on February 23, 2007, the specification describes the components or structure used by the Applicant and the intended results desired by the Applicant. However, the Applicant does not disclose how to use those components to achieve the stated results in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected to make and/or use the invention. For example, the Applicant discloses that the combination of the controller and inverter is used to change the magnitude of the speed signal sent to the motor to create the phase shift. Then, a sensor senses the actual phase shift. However, it is unclear how such a precise phase shift is accomplished so easily. There is no clear delineation of all the steps necessary to create the phase shift.

Originally, the following was included as part of the 35 U.S.C. 112, paragraph 1 rejection:

Claims 1 and 5 claim a sensing means for sensing the rotational speed and the phase of operation of each of the compressors. The specification discloses a sensor or sensing means for sensing the rotational speed and the phase of operation of each of the compressors (pg. 3, ll. 3-4 and pg 3, para. 7, ll. 6-7). The specification also discloses sensors monitoring refrigerant gas parameters, such as pressure pulses (pg. 4, para. 13, ll. 9-10). It is not clear how the system is sensing the rotational speed and phase as claimed. Instead, it seems more likely that the system is sensing the pressure and calculating the rotational speed and phase of operation of the compressors.

In response, the Applicant added the following language to claims 1 and 5 and new claim 8: determining or configured to determine "the rotational speed and the phase of operation of each compressor of the at least two compressors based on the sensed pressure pulses." The new language was only added to the claims, and the specification contradicts this material in that the specification continuously indicates that a sensor senses the rotational speed and phase of operation of each of the compressors (first mentioned in the specification, pg. 3, ll. 2-3). Prior to the amendment filed on May 21, 2007, no part of the disclosure indicated that the rotational speed and the phases of operation were determined based on the sensed pressure pulses.

For the above reasons, claims 1-8 are not enabled.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 5, and 8 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. The term "substantially" in claims 1, 5, and 8 is a relative term which renders the claim indefinite. The terms "substantially the same" and "substantially evenly spaced" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Therefore, for purposes of examination the terms "substantially the same" and "substantially evenly spaced" will be interpreted as "the same" and "evenly spaced" respectively.

Response to Amendment

9. The reply filed on May 21, 2007 is fully responsive to the prior Office Action.

10. Amendments to the specification and claims have been received, and due to these amendments the prior objections to the drawings, specification, and claims are withdrawn by the Examiner.

11. Due to the amendments to the claims, the prior 35 U.S.C. 112, second paragraph rejections are withdrawn by the Examiner.

12. The amendment filed May 21, 2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added

material which is not supported by the original disclosure is as follows: determining or configured to determine "the rotational speed and the phase of operation of each compressor of the at least two compressors based on the sensed pressure pulses" (amended claims 1 and 5 and new claim 8). The applicant argues that the above material was added "to clarify that the control means is controlling the rotational speed and the phase of operation of the at least two compressors based on the sensed pressure pulses" (Remarks filed May 21, 2007, p. 9, ll. 28-30). However, this material was only added to the claims, and the specification contradicts this material in that the specification continuously indicates that a sensor senses the rotational speed and phase of operation of each of the compressors (first mentioned in the specification, pg. 3, ll. 2-3). Prior to the amendment filed on May 21, 2007 no part of the disclosure indicated that the rotational speed and the phases of operation were determined based on the sensed pressure pulses.

Applicant is required to cancel the new matter in the reply to this Office Action.

13. The Applicant should also note that the prior 35 U.S.C. 112, first paragraph rejection was not withdrawn. The prior rejection has been amended to address the new issues created by the Applicant's amendment filed on May 21, 2007. In addition and for the benefit of the Applicant, the Examiner has explained a part of the prior 35 U.S.C. 112, first paragraph rejection in more detail.

Allowable Subject Matter

14. Claims 1-8 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 1st and 2nd paragraphs, set forth in this Office action.

15. The following is an examiner's statement of reasons for allowance: The prior art does not teach, in combination with the other limitations of the first and third independent claims, shifting the phase of operation of at least one compressor of the at least two compressors so that outlet pressure pulses operatively produced by the at least two compressors are evenly spaced.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- a. Lush 4,152,902, disclosed on an IDS, discloses a system with multiple screw compressors and appears to have some phase control.
- b. Peterson 5,950,439 discloses a sensor for sensing a condition in the system, including pressure, and controls the speed of the compressor motor based on that condition.

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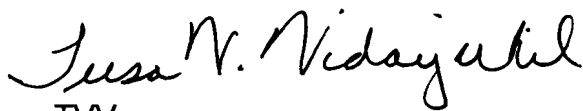
- c. Burkhardt 5,596,879 discloses the ability to calculate frequency based on pressure pulsations.
- d. Bohn 4,699,570 discloses the use of predetermined speeds and predetermined speed ranges with phase control.
- e. Sievert 2004/0126243 discloses determining the speed of a pump based on pressure peaks corresponding to the delivery of pumped fluid.
- f. Rafuse 5,797,729 discloses multiple compressors running at the same speed.
- g. Nogami 4,810,168 discloses phase control of one pump with respect to another.

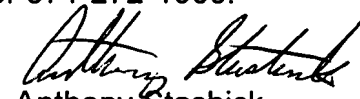
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tresa V. Vidayathil whose telephone number is (571) 272-3436. The examiner can normally be reached on 9AM - 5:30PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on (571) 272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


TVV


Anthony Stashick
Supervisory Primary Examiner
Art Unit 3746